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vacuum drying

Dictionary



vacuum drying
n.

Removal of liquid material from a solution or mixture under reduced air pressure, which results in drying at a lower temperature than is required at full pressure.

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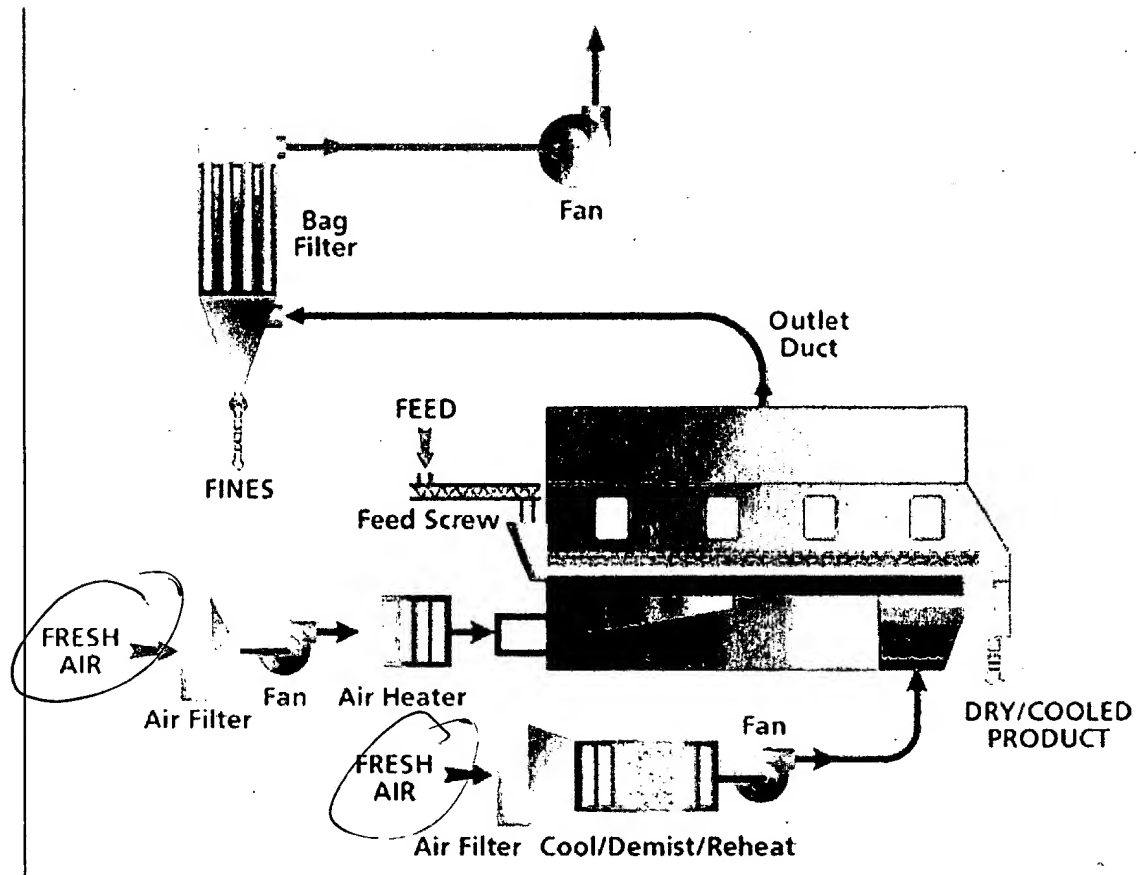
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The Barr-Rosin Research and Development Center is equipped with pilot scale fluid bed systems.

For a copy of our online brochure, please click on the appropriate link:

- [Fluid Bed Dryer Section](#)
- [Airstream Drying Brochure](#)

For other types of fluid bed dryers and fluid bed processors handled by our sister company, Niro, please access page titled [Fluid Bed Processing Systems](#)

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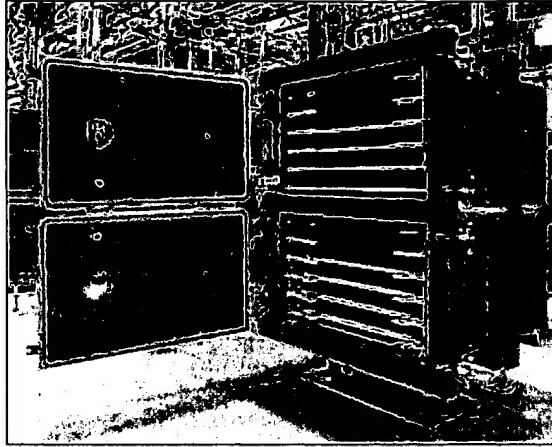
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McGill AirPressure LLC

Benefits of Vacuum Drying

Vacuum drying is ideal for materials that would be damaged or changed if exposed to high temperatures. The vacuum removes moisture while preventing the oxidation or explosions that can occur when certain materials combine with air. Vacuum drying is also ideal in situations where a solvent must be recovered or where materials must be dried to very low levels of moisture.



This vacuum shelf dryer is designed with two independent chambers for drying two types of materials at the same time.

Vacuum Drying Saves Time

Unlike atmospheric drying, drying under reduced pressure lowers the boiling point and provides a greater temperature difference between the heating medium and product. This results in faster drying and more efficient heat recovery.

Vacuum Drying Saves Money

Drying at lower temperatures reduces energy consumption. The dryers' closed-system design allows costly solvents to be recovered, eliminates expenses for additional air pollution control or exhaust systems, and minimizes product loss caused by atmospheric contaminants, dusting,

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■ Fluid Bed Dryer

The Barr-Rosin Fluid Bed is designed to dry products as they float on a cushion of air or gas.

The process air is supplied to the bed through a special perforated distributor plate and flows through the bed of solids at a velocity sufficient to support the weight of particles in a fluidized state. Bubbles form and collapse within the fluidized bed of material, promoting intense particle movement. In this state, the solids behave like a free flowing boiling liquid. Very high heat and mass transfer values are obtained as a result of the intimate contact with the solids and the differential velocities between individual particles and the fluidizing gas.

For even greater thermal efficiency and where inertisation is required, recycling of exhaust gases can be used. This can be implemented on all our airstream drying systems and retrofitted on customer's existing drying operations.

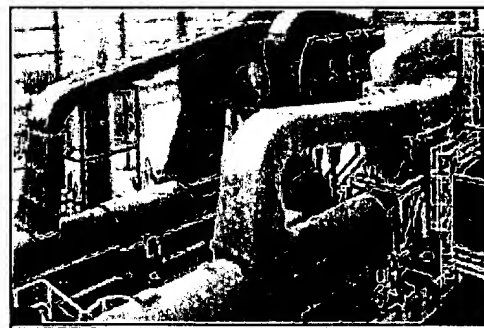
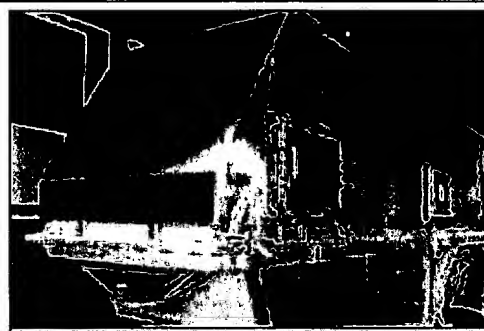
Contact tubes can be incorporated with non-cohesive materials that can be processed at temperatures approaching the fluid within the tubes. The result is a significant reduction in airflow compared with the typical standard fluid bed.

Many materials begin at or pass through a sticky, softening or cohesive phase during processing. Vibrating beds are extremely effective in keeping the material in a live fluidized state during this transitional phase.

Batch and continuous units ranging from pilot scale to 300 ft² (28 m²) have been supplied.

The fluid bed has been used to dry products in many industries including food, chemical, mineral and polymer. A broad range of feed materials including powders, crystals, granules and pills can be processed.

This technology can also be used for cooling applications; either as a separate unit or combined with drying in a single zoned bed.



Fluid Bed Dryer

Open circuit fluid bed dryer / cooler